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Second Interim Report of the Telecommunications Council on the "Internet Policy Direction in the 21st Century"

On March 28, 2001, MPHPT inquired of the Telecommunications Council (Chair: Mr. AKIYAMA Yoshihisa, Chairman, Kansai Electric Power Co., Inc.) on "Internet Policy Direction in the 21st Century." The council compiled its findings as the second interim report and on August 7, 2002, submitted the second interim report to the Minister of Public Management, Home Affairs, Posts and Telecommunications.

With regard to the Internet policy direction in the future, this report describes various proposals concerning i) promotion of content distribution, ii) promotion of IPv6 use, and iii) transition of Internet infrastructures to IPv6-based ones. The outlines of each chapter are as follows:

<Chapter I>

- The target as set forth in the "e-Japan Strategy" of 2001, i.e., "to provide high-speed constant access networks to at least 30 million households and ultrahigh-speed constant access to 10 million households," is on its way to becoming a reality.
- However, actual subscriptions to the high-speed/ultrahigh-speed Internet access services still remain to be a small number, leaving a wide gap between the numbers of actual subscriptions and homes passed.
- Also, in the "e-Japan Strategy," a policy target to "promote the shift to the Internet networks equipped with IPv6 that provides enough address space and stricter protection of privacy and network security" was set forth.
- For these reasons, this report refers to current problems and the role of the government for solving them, focusing on (1) various measures for "promotion of content distribution" and "promotion of IPv6 introduction" to encourage use of networks, and on (2) promotion of "transition of Inter-

net infrastructures to IPv6-based ones."

<Chapter II>

Toward promotion of content distribution over the Internet, there are vital issues including prevention of illegal copies, facilitation of copyright transactions. To this end, a technological and legal environment shall be prepared.

Technical issues and solution thereof

- In order to promote content distribution on the Internet, it is indispensable to diffuse digital rights management (DRM) technology that ensures protection of digital media content.
- As IPv6 is used increasingly for the Internet, the number of terminals, such as consumer electronics with IT, to which digital content is distributed, will increase. Thus, DRM will be a vital component of IT consumer electronics.
- To date, although mainstream DRM products for PCs are made in the U.S., with a viewpoint of strengthening Japan's industrial competitiveness, it is essential that R&D efforts on DRM shall be encouraged in order to realize the world's first DRM-preinstalled IT consumer electronics.
- In addition, it is important to actively support implementation of verification experiments by content owners and general consumers for building social consensus on content distribution over the Internet.

Legal issues and solution thereof

- It is recognized that Japan's legal frameworks including the Copyright Law, etc. for protecting content owners bear comparison with those in foreign countries.
- With the skyrocketing number of Internet users, however, it becomes very difficult to identify rights violators. Accordingly, there is an urgent task

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to ensure the practicability of rights. In addition, because there are many stakeholders to be coordinated in producing digital content for distribution on the Internet, issues to be tackled include the fact that rights management spends considerable amount of time and costs.

- Thus, in order to prevent illegal content distribution and ensure the effectiveness of legal schemes, it is indispensable to raise incentives for content distribution by content providers on the Internet through verification of the effectiveness of mechanisms for monitoring rights violation on the Internet and support for verification experiments for promoting rule making concerning rights management pertaining to content production.

<Chapter III>

- It is recognized that IPv6 introduction into networks forming the Internet, terminals and any levels lags in spite of facts that IPv6 standards have been established and allocation of international addresses for IPv6 has began.
- This Chapter explains that IPv6 improves user conveniences in comparison with IPv4, through results of IPv6-related verification experiments to date. In particular, this Chapter describes that IPv6 enables easier offerings of existing applications, such as IP telephony and mobile communications, and offerings of new service with improved user convenience through interconnection of terminals other than PCs.
- Furthermore, in order to promote diffusion of IPv6, it is vital to spur demand for IPv6-ready products through demonstration of convenience brought about by IPv6 to consumers in an easy-to-understand manner and support for R&D on IPv6-ready convenient terminals and applications.
- In parallel, when IPv6-ready CPE (customer premises equipment) can be directly connected to networks, it is important to implement verification experiments for building social consensus among stakeholders on desirable operation rules in order to put IPv6 into practical use, such as protection of proprietary information distributed over networks and clear definitions of the scope of liabilities pertaining to service offerings.

<Chapter IV>

For facilitating transition of the Internet to IPv6, it is vital to identify measures for implementation thereof. To this end, taking into consideration the current status and problems, a grand vision as a roadmap showing a path to IPv6 was compiled.

Current status

- Basic R&D was completed thanks to the considerable contributions of Japanese researchers.
- Taking a look at international R&D trends, many countries are catching up with Japan.
- The current IPv6 is still at an initial stage for practical operations before the full-scale introduction phase. It bears a similarity to the status of IPv4 a decade ago.
- In the years ahead, as the existing IPv4-based infrastructure become compatible with IPv6, IPv6 will be deployed at an introductory stage for fields newly introducing the Internet.

Roadmap showing a path toward transition

- 2002 – approximately 2003: IPv6 initial phase. IPv6-ready products are to be increased.
- Approximately 2004 - approximately 2006: IPv6 full-scale introduction phase. The replacement of old systems with IPv6-ready systems will be implemented and IPv6 will be deployed at an introductory stage for fields newly introducing the Internet.
- 2007 onwards: IPv6 development phase. Internet infrastructures will become IPv6-ready in almost all cases, thus practical use of the Internet enjoying the advantages of IPv6 will be diffused.
- For facilitating the transition of IPv4 to IPv6, based upon this Roadmap, it is essential for each player to act with a common understanding in coping with challenges below.

Challenges to be tackled by each player

- Manufacturers, etc.: It is critical to make their products (network equipment and software) for IPv6 at an early stage. Then, further enhancement of their products in terms of stability, performance and operability is required.
- ISPs: It is vital to provide IPv6 access service at an early stage. To this end, establishment of know-how on IPv6-

based network operations and fostering of human resources are needed.

- Homes: While an IPv6-ready outlook will take hold among residential consumers along with replacement of PCs, it will be matters of importance for manufacturers and ISPs to prepare such solutions as autoconfiguration functions for residential consumers who do not have the necessary expertise.
- Corporate users, etc.: When updating computer systems, there is a need to introduce IPv6-ready systems considering the lifetime thereof. For that purpose, first of all, system divisions and system integrators of each corporate user are required to clearly understand IPv6.
- New fields: Fields in which the Internet will be introduced anew, it is essential to employ IPv6-ready products at an introductory stage.
- Government: Its status as an Internet user is the same as corporate users. It is indispensable for the government as a facilitator, who prepare an environment suitable for Internet infrastructures, to take necessary measures for implementing verification experiments on the transitional model.

Conclusion

- Japan, as a leading country in IPv6, shall present its transitional model to other countries, and further contribute to worldwide deployment of IPv6.

<Chapter V>

- Taking into consideration new markets to be created by content distribution and IPv6, the forecasts of IT-related market sizes carried out by the Telecommunications Council in 1997 were reviewed.
- Market sizes in 2010 are forecast taking into consideration changes in socioeconomic circumstances, including communications rate reductions, sluggish macro-economy, development of advanced IT as exemplified by IPv6, etc. since the Telecommunications Council report of 1997.
- This Chapter forecasts that the "information and communications provider market size" will be 121 trillion yen in 2010. (This market size is 71 trillion yen bigger than that of 2001. It is anticipated that market sizes of the terminal market and the information service/content market will be

Internet Policy Direction in the 21st Century

Second Interim Report of the Telecommunications Council

Targets as set forth in the "e-Japan Strategy"

- Realization of the world's most advanced IT nation within 2005
- "to bring low-cost, flat-rate high-speed Internet access to 30 million households and ultrahigh-speed Internet to 10 million households"
 - "promote the shift to the Internet networks equipped with IPv6 that provides enough address space and stricter protection of privacy and network security"

Current status

Number of homes passed for high-speed/ultrahigh-speed Internet

| Ultrahigh-speed Internet | | High-speed Internet | |
|--------------------------|--------------|-----------------------|------------|
| Target (households) | Homes passed | DSL | Cable TV |
| 10 million | 14 million | 30 million circuits | 30 million |
| 35,000 | 35,000 | 23 million households | 2,699,000 |
| 0.3% | 0.3% | 1,533,000 | 6.7% |
| | | 7.7% | |

Source: Benchmarks, "e-Japan Priority Program 2002"

- ### IPv6 readiness
- Standardization was almost completed, IPv6-ready OS is at final stage
 - Japan's KAME Project leads world's R&D
 - IPv6-readiness of network equipment is in progress.
 - Japanese manufacturers (Hitachi, NEC, Fujitsu, etc.) achieved the world's first IPv6-readiness.
 - Launch of commercial IPv6-ready access service by ISPs
 - NTT-Com, IJ started the world's first IPv6-ready access service.
 - IPv6-readiness of network operations is in progress.
 - Japanese origin address policies are implemented since July 2002; IPv6-readiness of DNS is in progress.

Issues to be deliberated

- Promotion of use of high-speed/ultrahigh-speed Internet (promotion of content distribution, widespread use of IPv6-ready applications/terminals, etc.)
- Expansion of IPv6-based Internet infrastructures to be comprehensively compliant with advanced Internet use

Promotion of Internet Use

Promotion of content distribution

Factors preventing content distribution on the Internet

- Increase of illegal copies along with digitalization
- Complicated rights management pertaining to content production

Technical issues and solutions thereof

In addition to promotion of content distribution, with a viewpoint of strengthening Japan's industrial competitiveness, the following support measures will be implemented:

- Support for R&D on DRM-preinstalled terminals
- Implementation of verification experiments for building social consensus on content distribution over the Internet

Legal issues and solutions thereof

While preparing legal frameworks to cope with networking, support verification experiments with the following perspectives:

- Verification of the effectiveness of mechanisms for monitoring rights violation on the Internet in order to ensure the effectiveness of rights
- Promotion of rule making concerning rights management pertaining to content production

Promotion of IPv6 use

Advantages of IPv6 improving user convenience

- Improvement of convenience of existing services
 - Improvement of convenience for content distribution
 - Improvement of mobility
- Creation of diversified applications through use of terminals other than PCs
- Applications in the future

Implementation of verification experiments toward widespread use of IPv6 with the following perspectives:

- R&D on IPv6-ready convenient terminals and applications, and demonstration thereof to consumers in an easy-to-understand manner
- Social consensus-building among stakeholders on desirable operation rules (protection of proprietary information, the scope of liabilities related to service providers) in order to put IPv6 into practical use

Transition of the Internet to IPv6-based one

Analysis of current status

- Basic R&D was completed thanks to the considerable contributions of Japanese researchers.
- Japan's industry-academia-government efforts, many countries including the U.S. are catching up with Japan.
- The current IPv6 is still at an initial stage for practical operations before the full-scale introduction phase. It bears a similarity to the status of IPv4 a decade ago.
- In the years ahead, as the existing IPv4-based infrastructures become compatible with IPv6, IPv6 will be deployed.

Roadmap showing a path toward transition

IPv6 initial phase (2002-2003) → IPv6 full-scale introduction phase (2004-2006) → IPv6 development phase (2007-)

Penetration rate

Increase in IPv6 traffic

Replacement of old systems with IPv6-ready systems

Increase in the number of IPv6-ready products

Manufacturers, ISPs, Homes, Corporations, New fields, Government

Japan as a leading country in IPv6, shall distribute the transitional model to other countries, and further contribute to worldwide deployment of IPv6.

Challenges to be tackled

In order to accelerate initiatives toward IPv6 full-scale introduction, implement verification experiments on model projects in model local governments, with the following purposes:

- Establishment of higher reliability and user-friendliness of hardware/software necessary for the Internet as a social infrastructure
 - Earlier establishment of knowhow to facilitate transition of IPv6 coexisting with IPv4, and operation knowhow of IPv6 different from IPv4
 - Fostering of human resources with sufficient knowledge on IPv6

- It is forecast that the sizes of "e-commerce" in 2010 will be 211 trillion yen for intermediate goods and

24 trillion yen for final consumption goods.

"Study Group on Methods for Evaluating Competition in the Telecommunications Fields as IP Evolves" to Be Held

MPHPT will hold a "Study Group on Methods for Evaluating Competition in the Telecommunications Fields as IP Evolves" (Chair: Dr. SAITO Tadao, Professor Emeritus, the University of Tokyo) in order to investigate methods for evaluation of competitiveness in the telecommunications fields.

1. Purposes

In the "Final Report on Desirable Pro-Competitive Policies in the Telecommunications Business Field for Promoting the IT Revolution" publicized by the Telecommunications Council on August 7, 2002, it is proposed that, with regard to desirable scheme of regular effective competition review (market analysis) in the telecommunications fields, there is

a need to conduct detailed study for reaching a conclusion at the earliest possible stage at a specialist panel established anew.

To this end, upon implementation of proposals contained in the final report, MPHPT organized the study group with the purpose of deliberating on and studying methods for evaluating competition status in the telecommunications fields, including whether there are dominant carriers with market power.

2. Matters to be deliberated

- i) Changes in business models and influence on markets along with deployment of IP
- ii) Competitive status in each service sub-market

iii) Methods for evaluating competition status

3. Members

Number of members (including people with academic backgrounds, representatives of consumers, analysts, etc.): 14

Observers (including telecommunications carriers, Fair Trade Commission, etc.)

4. Schedule

The first meeting of the study group was held on September 5, 2002. The study group will hold meetings until June 2003, and formulate basic concepts concerning methods for evaluating competition within CY2002.

"International Conference on Globalization of Information" Held in China

Amidst the rapid development of information and communications technology, China, which entered the World Trade Organization (WTO), is facing issues, including development of related laws, systems of commerce and security. In addition, China's development and operations of information and communications technology are becoming issues of global concern. Against these backdrops, in order to facilitate international cooperation and information exchanges, etc., an "International Conference on Globalization of Information" was convened from August 26 to 27, 2002, at Kempinski Hotel Beijing Lufthansa Center in China.

This conference, organized by the China International Culture Exchange

Center (CICEC), had the following sponsorships and themes:

Sponsorships: State Council Information Office, China

- State Development and Planning Commission, China
- Ministry of Science and Technology, China
- Ministry of Public Security, China
- Legislative Affairs Office of the State Council, China
- Information Office of the State Council, China
- Chinese Academy of Science
- Development Research Center of the State Council, China

Themes: Internet Management and Security

- E-Administration and E-Commerce

- Information Society and Communication

At the conference, Mr. Jiang Zhenghua, Vice Chairman of the Standing Committee of the National People's Congress, Mr. Zheng Bijian, Senior Advisor, CICEC, gave congratulatory speeches, then government officials, corporate executives, etc. from guest countries and Mr. Liu He, Executive Vice Minister, the State Council Information Office, China, made lectures. The number of participants in the conference totaled about 150.

From MPHPT, Prof. TSUKIO Yoshio, Ph.D., Vice-Minister for Policy Coordination, gave a lecture, introducing Japan's IT development ranking in the

world, deployment of broadband platforms in Japan, the "e-Japan Strategy," trends of e-governments, the "Asia

Broadband Program," etc., and explained importance of constructing network infrastructures, information trans-

mission from the East Asia Kanji (Chinese character) Cultural Sphere and cultural diversity.

